

ADDITIONAL NOTES ON THE ERIOCAULACEAE. XXXII

Harold N. Moldenke

ERIOCAULACEAE Lindl.

Additional & emended bibliography: A. St. Hil., *Voy. Distr. Diam.* 2: 443—444. 1833; Benth., *Pl. Hartw.* 260. 1846; Bück, *Flora* 56: 90—91. 1873; imThurn, *Timehri* 5: 208. 1886; Oliv., *Trans. Linn. Soc. Lond. Bot.*, ser. 2, 2: 286, pl. 49b. 1887; V. A. Pouls., *Bot. Tidsskr.* 18: 279—292, 295, & 296, pl. 20 & 21. 1893; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 2: 681, 690, 992, 1021, 1088, & 1283. 1895; Kuntze, *Rev. Gen. Pl.* 3 (2): 329. 1898; Burkill, *Trans. Linn. Soc. Lond. Bot.*, ser. 2, 6: 13. 1901; N. E. Br., *Trans. Linn. Soc. Lond. Bot.*, ser. 2, 6: 69—72. 1901; Malme, *Bihang Svensk. Vet. Akad. Handl.* 27 (3), no. 2: 29, pl. 2, fig. 3. 1901; Thonn., *Blütenpfl. Afr.* pl. 15. 1908; T. Fr. in R. E. Fr., *Schwed. Rhod.-Kong.-Exped.* 1911—12 *Bot.* 1 (2): 218—219, pl. 16. 1916; J. C. Diogo, *Bol. Mus. Nac. Rio Jan.* 1: [27]—29. 1923; Stapf, *Ind. Lond.* 3: 90—91 (1930) and 4: 22, 67, 280, & 518—519. 1930; J. F. Macbr., *Field Mus. Publ. Bot.* 13 (363): 492. 1936; Moldenke, *Bull. Torr. Bot. Club* 68: 67—70. 1941; Worsdall, *Ind. Lond. Suppl.* 2: 28, 38, & 104. 1941; Suesseng. in Engl., *Bot. Jahrb.* 72: 293. 1942; Muenscher, *Aquat. Pl. U. S.* 12, 191—195, & 367, fig. 84 & 85 A & B, maps 204—208. 1944; Alain, *Contrib. Ocas. Mus. Hist. Nat. Coleg. La Salle* 7: 47 & 114. 1946; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 2, 2: 19, 35, 71, 84, 214, 295, 401—402, 497, 681, 960, 992, 1021, 1088, & 1283. 1946; Moldenke, *Mutisia* 6: [1]—3. 1952; Uribe, *Mutisia* 25: 26 & 28. 1956; A. Robyns, *Excerpt. Bot. A.1:* 58 & 215. 1959; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 3, 2: 19, 35, 71, 84, 214, 295, 401—402, 497, 681, 960, 992, 1021, 1088, & 1283. 1960; Hocking, *Excerpt. Bot. A.4:* 141, 284, & 591—593 (1962), A.6: 454—455 (1963), and A.7: 455. 1964; Dau, *Excerpt. Bot. A.7:* 520. 1964; Hocking, *Excerpt. Bot. A.9:* 289 & 290. 1965; Koyama in Ohwi, *Fl. Jap.* 265—270. 1965; Hocking, *Excerpt. Bot. A.12:* 425. 1967; Harborne & Clifford, *Phytochem.* 8: 2071—2075. 1969; Anon., *Biol. Abstr.* 51: 3848. 1970; Moldenke, *Phytologia* 20: 4—52 & 80—120. 1970; G. Taylor, *Ind. Kew. Suppl.* 14: 54 & 97. 1970; Mohlenbrock, *Illust. Fl. Ill. Flow. Pl. Flow. Rush* 249 & 270. 1970.

The Japanese name for this group of plants, according to Koyama (1965) is "hoshi-kusa ka". Harborne & Clifford (1969) give a survey of the known flavonoid patterns in the family.

BLASTOCAULON Ruhl.

Emended synonymy: Blastocaulum Ruhl. ex Alv. Silv., *Fl. Mont.* 1: 274, sphalm. 1928.

Additional & emended bibliography: Körn. in Mart., *Fl. Bras.* 3 (1): 277, 293, 350—352, & 507. 1863; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 1, 145. 1902; Ruhl. in Engl., *Pflanzenreich* 13 (4—30): 3, 11, 14, 15, 19, 20, 24, 25, 29, 30, 159, 223—225, [283],

291, & 292, fig. 32. 1903; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 64. 1904; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Phytologia 2: 494. 1948; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Phytologia 19: 322 (1970) and 20: 5. 1970.

BLASTOCAULON ALBIDUM (Gardn.) Ruhl.

Additional & emended synonymy: Paepalanthus albidus Gardn. in Hook., Icon. Pl. 6 [ser. 2, 2]: pl. 525. 1843. Dupatya albida (Gardn.) Kuntze, Rev. Gen. Pl. 3 (2): 329. 1898. Dupatya albida Kuntze apud Thiselt.-Dyer, Ind. Kew. Suppl. 2: 64, in syn. 1904.

Additional & emended bibliography: G. Gardn. in Hook., Icon. Pl. 6 [ser. 2, 2]: pl. 525. 1843; Kuntze, Rev. Gen. Pl. 3 (2): 329. 1898; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 64. 1904; Moldenke, Phytologia 20: 5. 1970.

Emended illustrations: G. Gardn. in Hook., Icon. Pl. 6 [ser. 2, 2]: pl. 525. 1843.

It would appear that the illustration given by Gardner (1843) applies to this species rather than to B. rupestre (Gardn.) Ruhl. as is sometimes stated.

BLASTOCAULON PROSTRATUM (Körn.) Ruhl.

Additional & emended synonymy: Dupatya prostrata (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya prostrata Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Additional & emended bibliography: Körn. in Mart., Fl. Bras. 3 (1): 277, 293, 300, 350, & 507. 1863; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 24, 223, 224, [283], 284, 291, & 292. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 402. 1946; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 402. 1960; Moldenke, Phytologia 19: 322. 1970.

BLASTOCAULON RUPESTRE (Gardn.) Ruhl.

Emended synonymy: Paepalanthus rupestris Gardn. in Hook., Icon. Pl. 6 [ser. 2, 2]: pl. 525. 1843.

Additional & emended bibliography: G. Gardn. in Hook., Icon. Pl. 6 [ser. 2, 2]: pl. 525. 1843; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 402. 1894; Ruhl. in Engl., Pflanzenreich 13 (4-30): 24, 223-224, [283], 287, 291, & 292, fig. 32. 1903; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 402 (1946) and pr. 3, 2: 402. 1960; Moldenke, Phytologia 20: 5. 1970.

CARPTOTEPALA Moldenke

Additional & emended bibliography: A. W. Hill, Ind. Kew. Suppl. 8: 169. 1933; Moldenke, Known Geogr. Distrib. Eric. 6 & 50. 1946; Moldenke, Phytologia 2: 377. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 66 & 210. 1949; Moldenke, Résumé 70, 72, 74,

249, 326, 401, 479, & 486. 1959; Moldenke, *Résumé Suppl.* 17: 2. 1968; Moldenke, *Phytologia* 19: 7-8. 1969.

CARPOTEPALA JENMANI (Gleason) Moldenke

Additional & emended bibliography: A. W. Hill, *Ind. Kew. Suppl.* 8: 169. 1933; Moldenke, *Known Geogr. Distrib. Erioc.* 6 & 50. 1946; Moldenke, *Phytologia* 2: 377. 1947; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 66 & 210. 1949; Moldenke, *Résumé* 70, 72, 74, 249, 326, 401, 479, & 486. 1959; Moldenke, *Résumé Suppl.* 17: 2. 1968; Moldenke, *Phytologia* 17: 374-376. 1968.

COMANTHERA L. B. Sm.

Additional bibliography: Körn. in *Mart.*, *Fl. Bras.* 3 (1): 438-439 & 507. 1863; Kuntze, *Rev. Gen. Pl.* 2: 745. 1891; Jacks. in *Hook. f. & Jacks.*, *Ind. Kew.*, pr. 1, 2: 402. 1894; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 1, 145. 1902; Ruhl. in *Engl.*, *Pflanzenreich* 13 (4-30): 273. 1903; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 2, 145. 1941; Jacks. in *Hook. f. & Jacks.*, *Ind. Kew.*, pr. 2, 2: 402. 1946; Moldenke, *Phytologia* 2: 491. 1948; Moldenke, *Bull. Jard. Bot. Brux.* 27: 119-120. 1957; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 3, 145. 1959; Jacks. in *Hook. f. & Jacks.*, *Ind. Kew.*, pr. 3, 2: 402. 1960; Hocking, *Excerpt. Bot. A.11:* 450. 1967; Moldenke, *Phytologia* 19: 322. 1970.

COMANTHERA KEGELIANA (Körn.) Moldenke

Emended synonymy: *Paepalanthus kegelianus* Körn. in *Mart.*, *Fl. Bras.* 3 (1): 438-439. 1863.

Additional & emended bibliography: Körn. in *Mart.*, *Fl. Bras.* 3 (1): 438-439 & 507. 1863; Jacks. in *Hook. f. & Jacks.*, *Ind. Kew.*, pr. 1, 2: 402. 1894; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 1, 145 (1902) and pr. 2, 145. 1941; Jacks. in *Hook. f. & Jacks.*, *Ind. Kew.*, pr. 2, 2: 402. 1946; Moldenke, *Phytologia* 2: 491. 1948; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 3, 145. 1959; Jacks. in *Hook. f. & Jacks.*, *Ind. Kew.*, pr. 3, 2: 402. 1960; Hocking, *Excerpt. Bot. A.11:* 450. 1967; Moldenke, *Phytologia* 19: 8. 1969.

ERIOCAULON Gron.

Additional & emended bibliography: A. St. Hil., *Voy. Distr. Diam.* 2: 443-444. 1833; Benth. in *Hook. f.*, *Niger Fl.* 547-548. 1849; Bock., *Flora* 56: 90-92. 1873; N. E. Br., *Trans. Linn. Soc. Lond. Bot.*, ser. 2, 6: 69. 1901; Muenscher, *Aquat. Pl. U. S.* 192-195 & 367, fig. 84 & 85 A & B, maps 204-208. 1944; E. J. Salisb., *Ind. Kew. Suppl.* 11: 38, 88, 157, 176, & 272. 1953; Hocking, *Excerpt. Bot. A.6:* 455 (1963) and *A.7:* 455. 1964; Koyama in Ohwi, *Fl. Jap.* 265-270. 1965; Moldenke, *Phytologia* 20: 5-32, 35-37, 39, 41, 42, 47-50, 52, 82, 83, 86, 92-96, 99, 104-108, 113, 114, & 120. 1970; G. Taylor, *Ind. Kew. Suppl.* 14: 54. 1970; Mohlenbrock, *Illust. Fl. Ill. Flow. Pl. Flow. Rush* 249 & 270. 1970.

The Japanese name for this genus, according to Koyama (1965), is "hoshikusa zoku". He gives a splendid key to the Japanese

species of the genus.

ERIOCAULON ARUPENSE Van Royen

Additional bibliography: K. U. Kramer, Excerpt. Bot. A.6: 33. 1963; Moldenke, Phytologia 19: 66. 1969; G. Taylor, Ind. Kew. Suppl. 14: 54. 1970.

ERIOCAULON ATRATUM Körn.

Additional & emended bibliography: Körn., Linnaea 27: 579, 584, & 610--611. 1856; Moldenke, Phytologia 2: 379 (1947) and 19: 324, 415, 451, & 476. 1970.

ERIOCAULON ATROIDES Satake

Additional bibliography: Moldenke, Phytologia 3: 144. 1949; Koyama in Ohwi, Fl. Jap. 266 & 269. 1965; Moldenke, Phytologia 19: 18. 1969.

Koyama (1965) records the vernacular name "kuro-inu-no-hige-modoki" for this plant. The species is known thus far only from the Kodzuki, Shimotsuke, and Uzen provinces on Honshu, Japan.

ERIOCAULON ATROIDES f. NANUM Satake

Additional bibliography: Moldenke, Phytologia 3: 144. 1949; Koyama in Ohwi, Fl. Jap. 269. 1965; Moldenke, Phytologia 18: 78. 1969.

This is a small form of the species with a lighter colored pistillate calyx and a slightly shorter involucre than in the typical form. It is known as "oze-inu-no-hige" and is found only in the Ozegahara moor on Honshu island, Japan.

ERIOCAULON ATRUM Nakai

Additional synonymy: Eriocaulon atrum var. atrum Koyama in Ohwi, Fl. Jap. 270. 1965.

Additional bibliography: Moldenke, Phytologia 2: 376 & 377 (1947) and 3: 143 & 144. 1949; Koyama in Ohwi, Fl. Jap. 266, 269, & 270. 1965; Moldenke, Phytologia 19: 324--325 & 451. 1970.

Koyama (1965) records the vernacular variant "kuro-inu-no-hige". It should be noted that E. atrum var. glaberrimum (Satake) Koyama is herein treated as E. glaberrimum Miyabe & Satake; E. atrum var. hananoegoense (Masamune) Koyama is by me treated under E. hananoegoense Masamune; and E. atrum var. nakasimanum (Satake) Koyama is treated by me as E. nakasimanum Satake. Koyama claims that E. glaberrimum is distinguished from E. atrum only by the "Flowers of both sexes wholly glabrous except the pistillate petals which are pilose inside"; E. hananoegoense is distinguished only by being "A dwarf phase of the typical variety"; and E. nakasimanum "Differs from the typical variety in the glabrous receptacle, not blackish involucre, and quite glabrous petals".

ERIOCAULON ATRUM var. INTERMEDIUM Nakai

Synonymy: Eriocaulon atrum var. intermedium "Nakai ex Satake"

apud Koyama in Ohwi, Fl. Jap. 270. 1965.

Additional bibliography: Moldenke, Phytologia 3: 144. 1949; Koyama in Ohwi, Fl. Jap. 270. 1965; Moldenke, Phytologia 18: 78. 1969.

Koyama (1965) records the vernacular name "saikoku-kuro-imu-no-hige" for this plant, states that it grows in western Honshu and on Kyushu, and that it is "A transitional phase between the typical variety and var. nakasimanum, distinguishable from the former by the not blackish involucre bracts".

ERIOCAULON ATRUM var. *PLATYPETALUM* Satake

Additional bibliography: Moldenke, Phytologia 3: 144 (1949) and 18: 78--79. 1969.

ERIOCAULON AUSTRALASICUM (F. Muell.) Körn.

Additional & emended bibliography: Körn., Linnaea 27: 579, 584, & 616--617. 1856; Körn. in Mart., Fl. Bras. 3 (1): 286, 293, 475, & 503. 1863; Moldenke, Phytologia 19: 18. 1969.

LEIOTHRIX BECKII (Szysz.) Ruhl.

Additional & emended bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 3, 226--227, 236, & 288--290. 1903; Moldenke, Phytologia 20: 90--91. 1970.

LEIOTHRIX CRASSIFOLIA (Bong.) Ruhl.

Additional & emended bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 10, 227--229, [283], 285, & 289. 1903; Moldenke, Phytologia 20: 92--93. 1970.

LEIOTHRIX CURVIFOLIA (Bong.) Ruhl.

Additional & emended bibliography: Körn. in Mart., Fl. Bras. 3 (1): 426--428 & 507. 1863; Ruhl. in Engl., Pflanzenreich 13 (4-30): 228, 233--235, 285, & 288--291. 1903; Moldenke, Phytologia 20: 90, 93--100, & 120. 1970.

LEIOTHRIX CURVIFOLIA var. *LANUGINOSA* (Bong.) Ruhl.

Additional & emended bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 627 (1831) and 2: 236--237, pl. 19 [inf.]. 1832; Ruhl. in Engl., Pflanzenreich 13 (4-30): 234, 286, 288, & 290. 1903; Moldenke, Phytologia 20: 94--97 & 100. 1970.

Emended illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 2: pl. 19 [inf.]. 1832.

LEIOTHRIX DIELSII Ruhl.

Synonymy: Paepalanthus dielsii (Ruhl.) J. F. Macbr., Candollea 5: 348. 1934.

Additional bibliography: J. F. Macbr., Candollea 5: 348. 1934; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Moldenke, Phytologia 20: 100--101. 1970.

LEIOTHRIX FLAGELLARIS (Guill.) Ruhl.

Additional & emended bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 225, 237, [283], 285, 288, & 290. 1903; Moldenke, Phytologia 20: 86 & 104--105. 1970.

LEIOTHRIX FLAVESCENS (Bong.) Ruhl.

Emended synonymy: Paepalanthus flavescens (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 423--424. 1863. Paepalanthus eriocephalus Klotzsch apud Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894.

Additional & emended bibliography: Körn. in Mart., Fl. Bras. 3 (1): 423--424, 502, 505, & 507. 1863; Burkill, Trans. Linn. Soc. Lond. Bot., ser. 2, 6: 13. 1901; N. E. Br., Trans. Linn. Soc. Lond. Bot., ser. 2, 6: 69 & 70. 1901; Ruhl. in Engl., Pflanzenreich 13 (4-30): 223, 228, 231, [283], 285, 288, & 290. 1903; J. F. Macbr., Field Mus. Publ. Bot. 13 (363): 492. 1936; Moldenke, Phytologia 20: 105--109 & 116. 1970.

Bongard (1831) actually describes this species as "acaule; pubescens; foliis linearilanceolatis subfalcatis nitentibus; pedunculis caespitosis; vaginis insignibus apice lacunculatis..... Habitat in humidis montis Itacolumni. Floret Augusto. Obs. Species longitudine vaginarum insignis et facile distinguenda." Ruhland (1903) comments "Weit verbreitet daselbst an grasigen sumpfigen oder sandig-feuchten Standorten". Klotzsch (1848) noted that it was found "Am südlichen Abhänge des Roraima, in einer Meereshöhe von 6000 Fuss, auf sumpfigen Grasstellen, zwischen Utricularia, Heliampora, Cypripedium und Stegolepis. Blüht im October und November. Perennirendes Kraut."

Macbride, rejecting the generic segregate Leiothrix, describes this plant as "Leaves spreading-hirsute, lanceolate, 5--13 cm. long, 2--8 mm. broad; peduncles shortly pubescent or glabrous; heads 1 cm. thick; bracts oblong-obovate, acute, somewhat yellowish" and cites Weberbauer 1292 from Puno, Peru, which, he says, was so determined by Ruhland himself.

LEIOTHRIX HIRSUTA (Wikstr.) Ruhl.

Emended synonymy: Dupatya hirsuta (Wikstr.) Kuntze, Rev. Gen. Pl. 2: 745. 1891 [not D. hirsuta Vell., 1825].

Additional & emended bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 227, 229--230, [283], 286--288, & 290. 1903; Moldenke, Phytologia 20: 108, 112, & 114--116. 1970.

The Dupatya hirsuta Vell., referred to in the synonymy above, actually belongs in the synonymy of Paepalanthus dupatya Mart.

LEIOTHRIX HIRSUTA var. BLANCHETIANA (Körn.) Ruhl.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894; Ruhl. in Engl., Pflanzenreich 13 (4-30): 227, 230, [283], 288, & 289. 1903; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 401 (1946) and pr. 3, 2: 401. 1960; Moldenke, Phytologia 20: 108 & 115--116. 1970.

LEIOTHRIX MUCRONATA (Bong.) Ruhl.

Additional & emended bibliography: Bong., Mém. Acad. Sci. St. Pétersb., sér. 6, 2: 234-235, pl. 19 [sup.]. 1832; Bong., Ess. Monog. Erioc. 71-72, pl. 19 [sup.]. 1832; Ruhl. in Engl., Pflanzenreich 13 (4-30): 228, 232-233, 284, 286, 288, & 291. 1903; Moldenke, Phytologia 20: 94 & 119-120. 1970.

Emended illustrations: Bong., Mém. Acad. Sci. St. Pétersb., sér. 6, 2: pl. 19 [sup.]. 1832; Bong., Ess. Monog. Erioc. pl. 19 [sup.]. 1832.

LEIOTHRIX NUBIGENA (Kunth) Ruhl.

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 879 (1893) and 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 227, 229, 284, 288, & 291, fig. 33. 1903; Prain, Ind. Kew. Suppl. 3: 101. 1908; Alv. Silv., Fl. Mont. 1: 400. 1928; Stapf, Ind. Lond. 4: 67 & 518. 1930; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 53, fig. 21. 1930; Gleason, Bull. Torr. Bot. Club 58: 331. 1931; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Worsdell, Ind. Lond. Suppl. 2: 38. 1941; Moldenke, Known Geogr. Distrib. Erioc. 9, 30, 43, & 51. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 879 (1946) and 2: 402. 1946; Moldenke, Alph. List Cit. 3: 935. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Phytologia 3: 499. 1951; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 92, 281, 327, & 484. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 879 (1960) and 2: 402. 1960; Moldenke, Résumé Suppl. 17: 10. 1968; Moldenke, Phytologia 20: 91, 108, & 120. 1970.

Illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 55, fig. 2. 1863; Ruhl. in Engl., Pflanzenreich 13 (4-30): 229, fig. 33. 1903; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 53, fig. 21. 1930.

The type of this species was collected by Friedrich Sellow "in summitate Serra de S. Antonio", Minas Gerais, Brazil, and probably is the Sellow B.1292 and the unnumbered collection from this locality cited below. Ruhland (1903) cites only the original Sellow collection. Silveira (1928) cites A. Silveira 527 from Serro Pouso Alto, Minas Gerais, collected in 1908.

Kunth (1841) says of this plant "Acaulibus affinior?, habitu tamen pluribusque aliis characteribus cum praecedente [Syngonanthus caulescens (Poir.) Ruhl.] arcte conjunctus videtur, licet vix caulescens, sepala interiora mascula (juvenilia) distincta et sepala exteriora feminea ab interioribus remota, haec basi pilis cincta; pistillum verisimiliter ut in Paepalantho rufulo. Nisi structura florum obstaret, pro varietate alpina P. caulescentis habuerim".

It should be noted here that Steudel (1855), when he made the new combination in the genus Eriocaulon, plainly accredits it to Kunth, but adds the qualifying phrase "l.c. sub: Paepalanthus".

Recent collectors have found this plant growing on campos,

flowering and fruiting in January and May. Irwin and his associates found it "frequent on rocky slopes with sand-filled pockets" at 1300 meters altitude and describe it as having "inflorescences ascending, heads light grayish-brown".

Material has been misidentified and distributed in herbaria as L. beckii (Szysz.) Ruhl. and L. flavescens (Bong.) Ruhl. On the other hand, the M. A. Chase 10358, distributed as L. nubigena, is actually the type collection of Paepalanthus chaseae Moldenke.

Additional citations: BRAZIL: Minas Gerais: Irwin, Santos, Souza, & Fonseca 22056 (Z); Sellow B.1292 [O.266] (B—type, N—photo of isotype, S— isotype, Z—photo of isotype), s.n. [Serra do S. Antonio] (Br— isotype, Br— isotype, N— isotype); A. Silveira 527 (N—photo, Z—photo); Williams & Assis 6924 (Ca—744430, N, W—1932846), 6925 (W—1932847). MOUNTED ILLUSTRATIONS: Mart., Fl. Bras. 3 (1): pl. 55 (B, B).

LEIOTHRIX OBTUSIFOLIA Alv. Silv.

Bibliography: Alv. Silv., Fl. Serr. Min. 69, pl. 26. 1908; Alv. Silv., Fl. Mont. 1: 280—281 & 400, pl. 182 [bis]. 1928; Stapf, Ind. Lond. 4: 67. 1930; A. W. Hill, Ind. Kew. Suppl. 8: 133. 1933; Worsdell, Ind. Lond. Suppl. 2: 38. 1941; Moldenke, Phytologia 2: 374 & 379. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Résumé 92 & 484. 1959; Rennó, Levant. Herb. Inst. Agron. 69. 1960.

Illustrations: Alv. Silv., Fl. Serr. Min. pl. 26. 1908; Alv. Silv., Fl. Mont. 1: pl. 182 [bis]. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 376) in the Serra do Cipó, Minas Gerais, Brazil, and is deposited in the Silveira herbarium.

Citations: BRAZIL: Minas Gerais: Mendes Magalhães 2542 [Herb. Jard. Bot. Belo Horiz. 43822] (N); A. Silveira 376 (B— isotype, Z— isotype); Tryon & Tryon 6770 (Z).

LEIOTHRIX PEDUNCULOSA Ruhl.

Synonymy: Paepalanthus pedunculosa Ruhl. ex Moldenke, Résumé Suppl. 1: 21, in syn. 1959.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 235, 237, & 288. 1903; Prain, Ind. Kew. Suppl. 3: 101. 1908; Alv. Silv., Fl. Mont. 1: 400. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 43. 1930; Moldenke, Known Geogr. Distrib. Erioc. 9 & 43. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Résumé 92 & 484. 1959; Moldenke, Résumé Suppl. 1: 6 & 21. 1959.

Ruhland (1903) cites only the type collection of this species, Glaziou 19999, from Minas Gerais, Brazil. Silveira (1928) cites A. Silveira 672 from Diamantina, Minas Gerais, collected in 1918. Recent collectors have found the plant growing at 1870 meters altitude, flowering and fruiting in April.

Citations: BRAZIL: Minas Gerais: Glaziou 19999 [Macbride

photos 10672] (B--type, N--photo of type, W--photo of type, Z--isotype). São Paulo: Segadas-Vianna 2694 [Lev. Fitosociol. 510430-0108] (Ja), 2697 [Lev. Fitosociol. 510430-01.13] (Ja, Ja, Z).

LEIOTHRIX PILULIFERA (Körn.) Ruhl.

Synonymy: *Paepalanthus pilulifer* Körn. in Mart., Fl. Bras. 3 (1): 425--426, pl. 55, fig. 1. 1863. *Dupatya pilulifera* (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. *Dupatya pilulifera* Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. *Leiothrix pilulifera* Ruhl. apud Prain, Ind. Kew. Suppl. 3: 101. 1908. *Leiothrix pilulifer* (Körn.) Ruhl. apud Thanikaimoni, Pollen & Spores 7: 186, sphalm. 1965.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 425--426, 500, & 506, pl. 55, fig. 1. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 228, 231, 284, 288, & 291. 1903; Prain, Ind. Kew. Suppl. 3: 101. 1908; Alv. Silv., Fl. Mont. 1: 288. 1928; Stapf, Ind. Lond. 4: 518. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Eric. 9, 30, 43, & 52. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 402. 1946; Moldenke, Alph. List Cit. 1: 222 (1946) and 3: 814. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Phytologia 3: 499. 1951; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 92, 281, 327, & 484. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 2: 5. 1960; Thanikaimoni, Pollen & Spores 7: 183, 185, & 186, tab. 1. 1965; Moldenke, Résumé Suppl. 14: 9. 1966; Moldenke, Phytologia 20: 82. 1970.

Illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 55, fig. 1. 1863; Thanikaimoni, Pollen & Spores 7: 183, tab. 1. 1965.

Ruhland (1903) cites only the type collection, *G. Gardner* 1429, from Alagoas, and also *Schwacke* 4294, from Pernambuco, Brazil. Material of *L. pilulifera* has been misidentified and distributed in herbaria as *Paepalanthus* sp. On the other hand, the *Curtiss* 6894, distributed as *Leiothrix pilulifera*, is a mixture of *Lachnocaulon engleri* Ruhl. and *L. minus* (Chapm.) Small.

Additional & emended citations: BRAZIL: Alagoas: *G. Gardner* 1429 (N--isotype, S--isotype). Paraíba: *Coêlho de Moraes* 2209 (Z); *Tavares* 992 (W--2405118). Pernambuco: *Pickel* 3165 (M, Qu, Ug, W--1790159); *Ridley s.n.* (Er, S); *Schwacke* 4294 (B). MOUNTED ILLUSTRATIONS: drawings & notes by *Körnicke* (B, B); *Martius*, Fl. Bras. 3 (1): pl. 55 (B).

LEIOTHRIX POLYSTEMMA Alv. Silv.

Bibliography: Alv. Silv., Fl. Mont. 1: 293--294 & 400. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 156. 1938; Moldenke, Known Geogr.

Distrib. Erioc. 9 & 43. 1946; Moldenke, Phytologia 2: 492. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Angely, Fl. Paran. 10: 12 & 14. 1957; Moldenke, Résumé 92 & 484. 1959; Angely, Fl. Paran. 16: 59 (1960) and 17: 24. 1961; Angely, Fl. Anal. Paran., ed. 1, 201. 1965.

The type and only known collection of this species is A. Silveira 737 from "campis humidis prope Barauna", Minas Gerais, Brazil, collected in April of 1918 and deposited in the Silveira herbarium. On page 400 of his work (1928) Silveira gives "1916" as the year of collection of the type. Whether this is a typographic error or is meant to be a correction of the earlier citation is not clear. There are numerous such discrepancies on the latter pages of this work when compared to the earlier pages. It is not at all clear which is to be regarded as correct.

LEIOTHRIX POLYSTEMMA var. ROBUSTA Alv. Silv.

Bibliography: Alv. Silv., Fl. Mont. 1: 294 & 400. 1928; Moldenke, Known Geogr. Distrib. Erioc. 9 & 43. 1946; Moldenke, Phytologia 2: 492. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Angely, Fl. Paran. 10: 12 & 14. 1957; Moldenke, Résumé 92 & 484. 1959; Angely, Fl. Paran. 16: 59 (1960) and 17: 24. 1961; Angely, Fl. Anal. Paran., ed. 1, 201. 1965.

Silveira (1928) describes this variety as "Folia rigida, coriacea, usque 26 cm longa, 1--1,5 cm lata. Capitula 10--12 mm diametro lata. Planta tota rufula et quam formam typicam robustior." The type was collected "In campis secus margines fluminis Pirahy", Paraná, Brazil, by Dr. Joaquim Gomes Michaeli in February of 1916. It is number 678 in the Silveira herbarium and as of this writing is the only known collection.

LEIOTHRIX PROLIFERA (Bong.) Ruhl.

Synonymy: Eriocaulon proliferum Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 632. 1831 [not E. proliferum Hochst., 1855]. Paepalanthus prolifer (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 417--418. 1863. Paepalanthus prolifer Körn. in Mart., Fl. Bras. 3 (1): 507. 1863. Dupatya prolifera (Bong.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Stephanophyllum proliferum Guill. apud Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 992. 1895. Dupatya prolifera Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 632. 1831; Bong., Ess. Monog. Erioc. 32. 1831; Guill. in Deless., Icon. Sel. 3: 61. 1837; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 5: pl. 28. 1839; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 577 & 614. 1841; D. Dietr., Syn. Pl. 5: 268. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 278 & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 417--418 & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 879 (1893), 2: 402 (1894), and 2: 992. 1895; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902;

Ruhl. in Engl., Pflanzenreich 13 (4-30): 235, 236, 284, 287, 288, & 291. 1903; Prain, Ind. Kew. Suppl. 3: 101. 1908; Alv. Silv., Fl. Mont. 1: 400. 1928; Stapf, Ind. Lond. 3: 91. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 9, 31, 39, 43, & 52. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 879 (1946) and 2: 402 & 992. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 92, 281, 291, 327, & 484. 1959; Moldenke, Résumé Suppl. 1: 23. 1959; Rennó, Levant. Herb. Inst. Agron. 69. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 879 (1960) and 2: 402 & 992. 1960; Moldenke, Phytologia 20: 86, 104, & 118. 1970.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 5: pl. 28. 1839.

The type of this species was collected by Ludwig Riedel (no. 287) "In jugis montium St. Joze, locis arenosis, graminosis", Minas Gerais, Brazil, and is deposited in the Leningrad herbarium. Ruhland (1903) cites only the type collection, L. Riedel 287, and two others, Glaziou 17310 and A. Silveira 1042, all from Minas Gerais. Silveira (1928) cites A. Silveira 212 from the Serra do Lenheiro, Minas Gerais, collected in 1896.

The Eriocaulon proliferum Hochst., referred to in the synonymy above, is a synonym of Leiothrix vivipara var. angusta Ruhl.

It should be noted here that Guillemin (1837) does not actually make the binomial combination in the genus Stephanophyllum attributed to him by Jackson (1895), but merely suggests it.

Recent collectors note that L. prolifera specimens are noteworthy for their almost uniformly viviparous inflorescence heads. W. H. Camp, in a note appended to the Herb. A. Gray s.n. specimen cited below, in 1942 opines that "this is probably an abnormal form of some [other] species". It has been collected in fruit in April. Material has been distributed in herbaria under the name Stephanophyllum Poul. On the other hand, the Martius s.n., distributed as Leiothrix prolifera, is actually a cotype collection of L. luxurians (Körn.) Ruhl.

Citations: BRAZIL: Minas Gerais: Glaziou 17310 (Br); Mello Barreto 4738 [Herb. Jard. Bot. Belo Horiz. 17744; Herb. U. S. Nat. Arb. 176189] (W--2121719), 4779 [Herb. Jard. Bot. Belo Horiz. 17536] (N), 17537 (N); E. Pereira 3153 [Pabst 3988] (Bd--3834, Z); L. Riedel 287 [Macbride photos 18737] (B--isotype, Br--isotype, Mu--149--isotype, N--photo of isotype, S--isotype, Ut--339--isotype, W--photo of isotype). State undetermined: Herb. A. Gray s.n. [Brasil] (T); Herb. Mus. Nac. Rio Jan. 4831 (S); Sellow s.n. [Brasilia meridionalis] (B), s.n. [Brasilia] (B, Br, N). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B); Martius, Fl. Bras. pl. ined. (B).

LEIOTHRIX PROPINQUA (Körn.) Ruhl.

Synonymy: Paepalanthus propinquus Körn. in Mart., Fl. Bras. 3

(1): 418-419, pl. 53, fig. 3. 1863. Dupatya propinqua (Körn.) Kuntze, Rev. Gen. Fl. 2: 746. 1891. Dupatya propinqua Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Leiothrix propinqua Ruhl. apud Prain, Ind. Kew. Suppl. 3: 101. 1908.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 418-419, pl. 53, fig. 3. 1863; Kuntze, Rev. Gen. Fl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 235, 237, 284, 288, & 291. 1903; Prain, Ind. Kew. Suppl. 3: 101. 1908; Alv. Silv., Fl. Mont. 1: 400. 1928; Stapf, Ind. Lond. 4: 519. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 9, 31, 43, & 52. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 92, 281, 327, & 484. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 402. 1960.

Illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 53, fig. 3. 1863.

Ruhland (1903) cites only the type collection of this species, but Silveira (1928) cites A. Silveira 427 from the Serra do Cipó, Minas Gerais, Brazil, as a second known collection, gathered in 1905.

Citations: BRAZIL: Minas Gerais: Sellow C.274 (B--type, Z-isotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

LEIOTHRIX RETRORSA Alv. Silv.

Bibliography: Alv. Silv., Fl. Mont. 1: 299 & 400, pl. 186. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 156. 1938; Worsdell, Ind. Lond. Suppl. 2: 38. 1941; Moldenke, Known Geogr. Distrib. Erioc. 9 & 43. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Résumé 92 & 484. 1959.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 186. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 836) in sandy fields near Serrinha, Grão Mogol, Minas Gerais, Brazil, in June of 1926 and is deposited in the Silveira herbarium. The collector notes that "Species pedunculis retrorso-pubescentibus valde distincta". The taxon is known only from the original collection.

LEIOTHRIX RUFULA (A. St. Hil.) Ruhl.

Synonymy: Eriocaulon rufulum A. St. Hil., Voy. Distr. Diam. 1: 391. 1833. Eriocaulon trinianum Mart., Flora 24, Beibl. 2: 58. 1841. Paepalanthus rufulus (A. St. Hil.) Kunth, Emm. Fl. 3: 530. 1841. Paepalanthus trinianus Mart. ex Walp., Ann. 1: 890. 1849. Eriocaulon clausenianum Steud., Syn. Pl. Glum. 2: [Cyp.] 279. 1855. Paepalanthus rufulus Kunth apud Körn. in Mart., Fl. Bras. 3 (1): 296, 423-425, & 507. 1863. Paepalanthus rufulus

var. vulgaris Körn. in Mart., Fl. Bras. 3 (1): 424. 1863.
Trichocalyx rufulus Kunth ex V. A. Poul., Vidensk. Medd. Kjøbenhavn 1888: 353. 1888. Dupatya rufula (A. St. Hil.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Paepalanthus trinianus Walp. apud Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 402. 1894. Dupatya rufula Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Leiothrix rufula Ruhl. apud Prain, Ind. Kew. Suppl. 3: 101. 1908.

Bibliography: A. St. Hil., Voy. Distr. Diam. 1: 391. 1833; Mart., Flora 24, Beibl. 2: 58. 1841; Kunth, Enum. Pl. 3: 530, 539, & 614. 1841; Walp., Ann. 1: 890. 1849; D. Dietr., Syn. Pl. 5: 262. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 276, 279, 280, 333, & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 296, 423-425, & 507. 1863; V. P. Poul., Vidensk. Medd. Kjøbenhavn 1888: 353. 1888; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878 & 879 (1893) and 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 227, 230, 285, 287, & 288. 1903; Prain, Ind. Kew. Suppl. 3: 101. 1908; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 9, 33, 39, 41, 43, & 53. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878 & 879 (1946) and 2: 402. 1946; Moldenke, Phytologia 2: 499. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Alph. List Cit. 3: 710. 1949; Moldenke, Phytologia 3: 499-500. 1951; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 72, 282, 287, 292, 293, 328, 355, & 484. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878 & 879 (1960) and 2: 402. 1960; Moldenke, Phytologia 20: 100. 1970.

This species has been found growing on beaches. Ruhland (1903) cites no specimens at all, but records the species from Bahia, Minas Gerais, and Rio de Janeiro. I have seen no collections of it from Minas Gerais unless the Clausen collections, cited below, are from that state -- which is very possible. Martius 550 is the type collection of Eriocaulon trinianum Mart. -- on the label of one of the sheets of this number in the Brussels herbarium the words "Rio de Janeiro" are crossed out and "Bahia ?" has been substituted by an unknown hand.

Kunth (1841) notes under what he called Paepalanthus nubigena that its "pistillum verisimiliter ut in Paepalantho rufulo". Under what he called Paepalanthus rufulus he says "In specimine a Luschnathio in Praya Sernambatiba lecta pedunculi 3-6-pollicares", while as norm for the species he gives the length as 3 -- 3 1/2 inches. Körnicke (1863) describes the typical form of the species as "planta 2 1/2 -- 6-pollicaris" in height, while his var. elatior is "planta robustior, 8 -- 9-pollicaris". He cites for the typical form Clausen s.n., Gaudichaud s.n., Luschnath s.n. [Campos Bravos et Boa Perna] & s.n. [Campos S. João], Martius 550, L. Riedel 560, A. St. Hilaire s.n., and Weddell 572, all from Rio

de Janeiro, and also L. Riedel s.n. and Sellow s.n. [inter Vittoria et Bahia] from Minas Gerais.

Walpers' description (1849) actually is "12. Paepalanthus (Eriocaulon) trinianus Mart. l. c. 58 - Affinis P. saxatilis, sed differt foliis densioribus strictioribusque, scapis strictioribus et crassioribus, capitulis duplo majoribus. - Ad Sebastianopolin in Brasilia."

Additional citations: BRAZIL: Bahia: Sellow 628/1149 (B). Rio de Janeiro: Gaudichaud 308 (B, Br, N); Luschnath s.n. [Campos St. João, Martio 1833] (Br), s.n. [Cabo Frio] (B); Martius 550 (B, Br, Br, Mu--173, N, N--photo, Z--photo); Netto, Glaziou, & Schwacke 1881 [Herb. Mus. Nac. Rio Jan. 4835] (S); L. Riedel 559 (B), 560 (B), s.n. [inter Macahe et St. Salvador dos Campos] (B, Mu--172, S, Ut--340); A. Saint Hilaire I.391 (B--isotype); Segadas-Vianna, Dau, Ormond, Machline, & Lorêdo 151 (Ja, Z); L. B. Smith 6592 (W-2120190); Weddell 572 (Br). State undetermined: P. Clausen 6 (B), 2006 (E, Ut--383). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

LEIOTHRIX RUFULA var. ELATIOR (Körn.) Moldenke, comb. nov.

Synonymy: Paepalanthus rufulus var. elatior Körn. in Mart., Fl. Bras. 3 (1): 424. 1863.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 424. 1863.

Körnicke (1863) separates this variety from the typical form of the species by describing it as "planta robustior, 8--9-pollicaris", while the typical form of the species [which he calls Paepalanthus rufulus var. vulgaris] is described as "planta 2 1/2 -- 6-pollicaris". The variety elatior is based on L. Riedel s.n. from Minas Gerais, Brazil.

LEIOTHRIX SCHLECHTENDALII (Körn.) Ruhl.

Synonymy: Paepalanthus schlechtendalii Körn. in Mart., Fl. Bras. 3 (1): 425--426. 1863. Dupatya schlechtendalii (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya schlechtendalii Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Leiostrix schlechtendalii Ruhl. apud Prain, Ind. Kew. Suppl. 3: 101. 1908.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 425--426 & 506. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 228, 231, 284, 288, & 291. 1903; Alv. Silv., Fl. Mont. 1: 288. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 9, 31, 43, & 53. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 92, 282, 328, & 484. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 12: 10. 1965.

Ruhland (1903) cites only the type collection of this species, Blanchet 3818, from Bahia, Brazil, and this seems to be the only collection known thus far. Macbride photographed the type in the herbarium of the Botanisches Museum at Berlin as his type photograph number 10673.

Citations: BRAZIL: Bahia: Blanchet 3818 [Macbride photos 10673] (B--type, Br--isotype, N--isotype, N--photo of type, W--photo of type). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

LEIOTHRIX SCLEROPHYLLA Alv. Silv.

Bibliography: Alv. Silv., Fl. Serr. Min. 68, pl. 26. 1908; Alv. Silv., Fl. Mont. 1: 276--277 & 400, pl. 183. 1928; Stapf, Ind. Lond. 4: 67. 1930; A. W. Hill, Ind. Kew. Suppl. 8: 133. 1933; Worsdell, Ind. Lond. Suppl. 2: 38. 1941; Moldenke, Phytologia 2: 374 & 379. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Résumé 92 & 484. 1959.

Illustrations: Alv. Silv., Fl. Serr. Min. pl. 26. 1908; Alv. Silv., Fl. Mont. 1: pl. 183. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 377) in the Serra do Cipó, Minas Gerais, Brazil, in 1905 and is deposited in the Silveira herbarium.

Citations: BRAZIL: Minas Gerais: A. Silveira 377 (B--isotype, Z--isotype); L. B. Smith 6844 (Z).

LEIOTHRIX SPERGULA Ruhl.

Synonymy: Paepalanthus spergula Ruhl. ex Moldenke, Résumé Suppl. 1: 22, in syn. 1959.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 235, 237--238, & 288. 1903; Prain, Ind. Kew. Suppl. 3: 101. 1908; Alv. Silv., Fl. Mont. 1: 400. 1928; Moldenke, Known Geogr. Distrib. Eric. 9 & 43. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Résumé 92 & 484. 1959; Moldenke, Résumé Suppl. 1: 22. 1959.

Ruhland (1903) based this species on Glaziou 20000 from Minas Gerais, Brazil, and cites only this collection, which, according to its labels, he apparently intended first to place in the genus Paepalanthus. He comments "Species foliis latis insignis", but I can hardly see any justification whatever for such a comment. Macbride photographed the type specimen in the herbarium of the Botanisches Museum at Berlin as his type photograph number 10674. Silveira (1928) cites A. Silveira 531, collected at Diamantina, Minas Gerais, in 1908.

The plant has been found by collectors at the edges of rivers and forming mats in disintegrated rock between crags at 2160 meters altitude, flowering and fruiting in May and November. Miss Mexia refers to it as "abundant".

Material of this species has been misidentified and distributed in herbaria under the names Leiothrix vivipara (Bong.) Ruhl. and Paepalanthus viviparus Mun. Mexia 5734 is a mixture with Syngonanthus niveus var. rosulatus (Körn.) Moldenke.

Citations: BRAZIL: Minas Gerais: Glaziou 20000 [Macbride photos 10674] (B--type, Br--isotype, N--isotype, N--photo of type, W--1112518--isotype, W--photo of type); Mello Barreto 9445 [Herb. Jard. Bot. Belo Horiz. 24636] (N); Mexia 5734, in part [Herb. Leonard 7657] (B, B), 5781 (B, Go, Mi, N, N, Qu, S, Se--114036, Wt--50248a, W--1571906, Z).

LEIOTHRIX SPIRALIS (Bong.) Ruhl.

Synonymy: Eriocaulon spirale Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 634. 1831. Paepalanthus spiralis (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 420--421. 1863. Paepalanthus spiralis Körn. in Mart., Fl. Bras. 3 (1): 507 & 508. 1863. Dupatya spiralis (Bong.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya spiralis Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Leiothrix spiralis (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 226 & 288. 1903. Leiothrix spiralis Ruhl. apud Prain, Ind. Kew. Suppl. 3: 101. 1908.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 634, [pl. 45]. 1831; Bong., Ess. Monog. Erioc. 8 & 34. 1831; Steud., Nom. Bot., ed. 2, 1: 586. 1840; Kunth, Enum. Pl. 3: 572, 578, & 614. 1841; D. Dietr., Syn. Pl. 5: 268. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 280 & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 420--421, 507, & 508. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 879 (1893) and 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 226, 284, 287, 288, & 292. 1903; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 54. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 9, 31, 40, & 43. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 879 (1946) and 2: 402. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 92, 282, 292, 328, & 484. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 879 (1960) and 2: 402. 1960; Moldenke, Résumé Suppl. 12: 10. 1965.

It should be noted here that, according to Körnicke, the plate "45" of Bongard's original work (1831) was never actually published and probably exists only in the Leningrad herbarium. Kunth (1841) notes of this species "Affine videtur E. Freyreisii Billb. sed folia non setacea". Ruhland (1903) cites only the type collection, L. Riedel 1066, from rather wet gravelly places in the Serra da Lapa, Minas Gerais, Brazil, the actual type doubtless deposited in the Leningrad herbarium.

Recent collectors have found this plant growing in wet sand in areas of grassland and sedgeland interspersed with shrubby areas containing sandstone and quartzite rocks and derived soil, at altitudes of 1200 to 1295 meters, flowering and fruiting in February and November.

Citations: BRAZIL: Minas Gerais: L. Riedel 1066 [Macbride photos 10675] (B--isotype, N--photo of isotype, N--photo of isotype, W--photo of isotype); Segadas-Vianna 6003 (N); Tryon & Tryon 6767 (Z). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (R).

LEIOTHRIX STEYERMARKII Moldenke

Bibliography: Moldenke, *Phytologia* 2: 379. 1947; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 63 & 207. 1949; Moldenke, *Alph. List Cit.* 3: 975. 1949; Moldenke, *Fieldiana Bot.* 28: 118--119. 1951; Moldenke, *Phytologia* 3: 500. 1951; J. A. Steyerm., *Fieldiana Bot.* 28: 1157. 1957; G. Taylor, *Ind. Kew. Suppl.* 12: 79. 1959; Moldenke, *Résumé 71 & 484*. 1959; J. A. Steyerm., *Act. Bot. Venez.* 1: 69. 1966.

The type of this handsome species was collected by Julian Alfred Steyermark (no. 59779) -- in whose honor it is named -- in a *Brocchinia-Stegolepis-Heliamphora* swamp on the southwest-facing shoulder of Ptari-tepui, at an altitude of 2200 meters, Bolívar, Venezuela, on November 2, 1944, and is deposited in the Britton Herbarium at the New York Botanical Garden. The species does not resemble closely any other species of the genus in northern South America.

LEIOTHRIX SUBULATA Alv. Silv.

Bibliography: Alv. Silv., *Fl. Mont.* 1: 288 & 400. 1928; A. W. Hill, *Ind. Kew. Suppl.* 9: 156. 1938; Moldenke, *Known Geogr. Distrib. Erioc.* 9 & 43. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 79 & 207. 1949; Moldenke, *Résumé 92 & 485*. 1959.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 538) in sandy fields in the Serra da Raiz, along the road to Diamantina, Minas Gerais, Brazil, in April of 1908 and is deposited in the Silveira herbarium. The collector says of the species "*Ab affinibus L. Schlechtendalii* (Koern.) Ruhl. et *L. pilulifera* (Koern.) Ruhl. praecipue bracteis flores stipantibus, sepalis florum masculorum et sepalis petalisque florum femineorum omnibus subulatis differt". Thus far the species is known only from the type collection.

LEIOTHRIX TENUIFOLIA Alv. Silv.

Bibliography: Alv. Silv., *Fl. Mont.* 1: 285, 286, & 400. 1928; A. W. Hill, *Ind. Kew. Suppl.* 9: 156. 1938; Moldenke, *Known Geogr. Distrib. Erioc.* 9 & 43. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 79 & 207. 1949; Moldenke, *Résumé 92 & 485*. 1959; Moldenke, *Phytologia* 20: 86. 1970.

This species is based on A. Silveira 675 from "In campis arenosis humidisque prope Barauna", Minas Gerais, Brazil, collected in April of 1918 and deposited in the Silveira herbarium. The collector notes (1928) that the species appears to be closely related to *L. affinis* Alv. Silv. On page 400 of his work he spells the name of the type locality "Braunas"; if this is a mis-

print or is intended as a correction is not clear. Thus far the species is known only from the original collection.

LEIOTHRIX TINGUENSIS Herzog

Synonymy: Leiothrix tinuensis Herzog ex Moldenke, Known Geogr. Distrib. Erioc. 9 & 43, sphalm. 1946.

Bibliography: Lützelburg, Estud. Bot. Nordést. 3: 148. 1923; Herzog in Fedde, Repert. Sp. Nov. 20: 87. 1924; A. W. Hill, Ind. Kew. Suppl. 7: 135. 1929; Moldenke, Known Geogr. Distrib. Erioc. 9 & 43. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Phytologia 3: 500. 1951; Moldenke, Résumé 92, 309, & 485. 1959.

Thus far this species is known only from the type collection.

Citations: BRAZIL: Bahia: Lützelburg 2023 [Macbride photos 18738] (Mu--type, N--photo of type, W--photo of type, Z--isotype).

LEIOTHRIX TRIANGULARIS Alv. Silv.

Bibliography: Alv. Silv., Fl. Mont. 1: 305--306, pl. 192. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 156. 1938; Worsdell, Ind. Lond. Suppl. 2: 38. 1941; Moldenke, Known Geogr. Distrib. Erioc. 9 & 43. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Résumé 92 & 485. 1959; Moldenke, Phytologia 20: 105. 1970.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 192. 1928.

The type of this species was collected by Dr. Joaquim Gomes Michaeli near Araxa, Minas Gerais, Brazil, in 1918, and is number 625 in the Silveira herbarium. Silveira (1928) remarks that "Species a L. arrecta Ruhl. vaginis triangularibus et folia superantibus facile distinguenda". Material has been misidentified and distributed in herbaria as L. flagellaris (Guill.) Ruhl.

Citations: BRAZIL: Minas Gerais: Williams & Assis 6910 (Ca--744431, W--1932843, Z).

LEIOTHRIX TRICHOPUS Alv. Silv.

Synonymy: Leiothrix trichophyllus Alv. Silv., Fl. Mont. 1: 400. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 281 & 400. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 156. 1938; Moldenke, Known Geogr. Distrib. Erioc. 9 & 44. 1946; Moldenke, Phytologia 2: 495. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Résumé 92, 309, & 485. 1959.

This species is based on A. Silveira 717, collected in sandy fields in the Serra do Cipó, Minas Gerais, Brazil, in April of 1905 and is deposited in the Silveira herbarium. Thus far it is known only from this original collection, and Silveira (1928) remarks of it "Species ob sepala floris masculi certe distincta".

LEIOTHRIX TRIFIDA Alv. Silv.

Bibliography: Alv. Silv., Fl. Mont. 1: 277, 294, & 400, pl. 184. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 156. 1938; Worsdell, Ind. Lond. Suppl. 2: 38. 1941; Moldenke, Known Geogr. Distrib.

Erioc. 8 & 44. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Résumé 92 & 485. 1959; Moldenke, Phytologia 20: 112. 1970.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 184. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 670) "In campis subrupibus secus margines fluminis Jequitinhonha, inter Diamantina et Itambé", Minas Gerais, Brazil, in April of 1918 and is deposited in the Silveira herbarium. Thus far the species is known only from the original collection and Silveira (1928) notes that "Species ob vaginas trifidas et pistilli rudimentum perspicue pedicellatum et petala aequans in sectione Eleutherandra distinctissima". He also notes that it is related to L. glandulifera Alv. Silv.

LEIOTHRIX TURBINATA Gleason

Bibliography: Gleason, Bull. Torr. Bot. Club 58: 331. 1931; A. W. Hill, Ind. Kew. Suppl. 9: 156. 1938; Moldenke, Known Geogr. Distrib. Erioc. 6 & 44. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 63 & 207. 1949; Moldenke, Alph. List Cit. 3: 975. 1949; Moldenke, Phytologia 3: 500. 1951; Moldenke, Résumé 71 & 485. 1959; Moldenke, Résumé Suppl. 3: 12. 1962.

The type of this species was collected by George Henry Hamilton Tate (no. 775) on moist slopes of the Savanna Hills, Mount Duida, Amazonas, Venezuela, and is deposited in the Britton Herbarium at the New York Botanical Garden. Tate 692, cited below, has larger leaves than those seen on the type, being as much as 8 mm. wide. Gleason claims (1931) that the species is "apparently related to L. nubigena (Kunth) Ruhl., of Minas Geraes, which has much smaller leaves, glabrous peduncles, and acuminate outer bracts".

Recent collectors have found this plant growing on quartzite of escarpments, "singly or in clumps, frequent in scrub forest and savannas", "occasional on low bush slopes", "frequent solitary or forming loose cushions on escarpment savannas", and "occasional on open cumbre savannas", at altitudes of 1200 to 2100 meters, flowering and fruiting from November to January. Maguire and his associates describe it as a "perennial sometimes caespitose herb" with white floral heads.

Additional citations: VENEZUELA: Amazonas: Maguire, Wurdack, & Bunting 37031 (N), 37124 (N), 37196 (N), 37309 (N); Maguire, Wurdack, & Maguire 42114 (N, S), 42285 (N); G. H. H. Tate 692 (N), 775 (N--type). Bolívar: Steyermark & Nilsson 285 (Ve), 593 (N, Z).

LEIOTHRIX UMBRATILIS Moldenke

Synonymy: Leiotrrix umbratilis Moldenke ex J. A. Steyer., Act. Bot. Venez. 1: 98, sphalm. 1966.

Bibliography: Moldenke, Phytologia 2: 379. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 63 & 207. 1949; Moldenke, Alph. List Cit. 3: 976. 1949; Moldenke, Phytologia 3: 500.

1951; Moldenke, Fieldiana Bot. 28: 119--120. 1951; J. A. Steyerl., Fieldiana Bot. 28: 1157. 1957; G. Taylor, Ind. Kew. Suppl. 12: 79. 1959; Moldenke, Résumé 71, 92, & 485. 1959; J. A. Steyerl., Act. Bot. Venez. 1: 98. 1966; Moldenke, Résumé Suppl. 16: 23. 1968.

The type of this species was collected by Julian Alfred Steyermark (no. 60280) in shaded places at the edge of a forest in scrubby Stegolepis-shrub growth on the mesa between Ptari-tepui and Sororopán-tepui, in the vicinity of Misia Kathy Camp, at an altitude of 1615 meters, Bolívar, Venezuela, between November 15 and 17, 1944, and is deposited in the Britton Herbarium at the New York Botanical Garden. The species is obviously related to L. flavescens (Bong.) Ruhl., but differs in its longer and broader leaves, the peduncles not surpassing the leaves, and in floral characters. Recent collectors describe it as "locally common, in clumps" or as "infrequent" in Amazonas, but "frequent in burnt-over bogs on the Brazil-Venezuela frontier", at 1900 to 2400 meters altitude, flowering and fruiting in November and December.

Additional citations: VENEZUELA: Amazonas: Maguire, Wurdack, & Maguire 42353 (N, S), 42385 (N). Bolívar: Agostini & Koyama 7446 (N, N, N); Maguire & Maguire 40419 (N).

LEIOTHRIX VIVIPARA (Bong.) Ruhl.

Synonymy: Eriocaulon viviparum Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 632. 1831. Paepalanthus viviparus Mart. ex Körn. in Mart., Fl. Bras. 3 (1): 417 & 507. 1863. Dupatya vivipara (Bong.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Stephanophyllum viviparum Guill. apud Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 992. 1895. Dupatya vivipara Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Leiothrix vivipara Ruhl. apud Prain, Ind. Kew. Suppl. 3: 101. 1908. Leiothrix vivipara (Mart.) Ruhl. ex Alv. Silv., Fl. Mont. 1: 400. 1928. Paepalanthus viviparus Mun., in herb.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 632. 1831; Bong., Ess. Monog. Erioc. 32. 1831; Guill. in Delless., Icon. Sel. 3: 61. 1837; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 5: 13, pl. 28a. 1839; Steud., Nom. Bot., ed. 2, 586. 1840; Kunth, Enum. Pl. 3: 526, 577, & 614. 1841; D. Dietr., Syn. Pl. 5: 268. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 277 & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 296, 417, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 879 (1893), 2: 402 (1894), and 2: 992. 1895; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 238, 284, 287, 288, & 292. 1903; Prain, Ind. Kew. Suppl. 3: 101. 1908; Alv. Silv., Fl. Mont. 1: 400. 1928; Stapf, Ind. Lond. 3: 91. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 9, 31, 39, 41, 44, & 55. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 879 (1946) and 2: 402 & 992. 1946; Moldenke,

Phytologia 2: 495. 1948; Moldenke, *Alph. List Cit.* 3: 731. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 79 & 207. 1949; Moldenke, *Phytologia* 3: 500. 1951; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 3, 145. 1959; Moldenke, *Résumé* 92, 282, 291, 293, 309, 329, & 485. 1959; Moldenke, *Résumé Suppl.* 1: 22 & 23. 1959; Jacks. in *Hook. f. & Jacks., Ind. Kew.*, pr. 3, 1: 879 (1960) and 2: 402 & 992. 1960; Rennó, *Levant. Herb. Inst. Agron.* 69. 1960; Moldenke, *Biol. Abstr.* 47: 6792. 1966; Hocking, *Excerpt. Bot. A.* 11: 450. 1967; Moldenke, *Phytologia* 20: 86, 104, & 105. 1970.

Illustrations: Bong., *Mém. Acad. Imp. Sci. St. Pétersb.*, sér. 6, 5: pl. 28a. 1839.

The type of this species was collected by Ludwig Riedel (no. 582) in rather wet shady places in the Serra da Piedade, Minas Gerais, Brazil. Ruhland (1903) cites only this original collection, specimens of which apparently sometimes occur in herbaria without a collector's number. It also seems very probable that the specimens from the herbarium of Asa Gray, cited below, are a part of this type collection. Silveira (1928) cites A. Silveira 426, collected in the Serra do Caraça, Minas Gerais, in 1906.

Kunth (1841) states that Bongard's plate "28", depicting this species, was never published, but it seems most probable to me that it corresponds to the plate "28a" published by him in 1839. Under what is now called L. flagellaris (Guill.) Ruhl. this same author states "Eriocaulo viviparo et prolifero Bong. valde affinis, nonnisi glabritie et vaginarum brevitate ab iis differre videtur".

In spite of what is claimed by Jackson (1895), Guillemain (1837) does not actually make the combination in Stephanophyllum credited to him by Jackson and other later authors.

Recent collectors in Brazil describe Leiothrix vivipara as a "rosette herb, the inflorescence to about 25 cm. tall, heads sordid-white" and found it growing "in cerrado interspersed with wet rocky campo", at 950 meters altitude, flowering and fruiting in February.

The Mello Barreto 2513, distributed as L. vivipara, is actually L. flagellaris (Guill.) Ruhl., while Mello Barreto 9445 and Mexia 5781 are L. spergula Ruhl.

Additional citations: BRAZIL: Minas Gerais: P. Clausen s.n. [1840] (S); Herb. Martens s.n. (Br); Irwin, Santos, Souza, & Fonseca 23372 (Rf); L. Riedel 582 [Macbride photos 18739] (B--isotype, Br--isotype, Mu--150--isotype, N--isotype, N--photo of isotype, S--isotype, Ut--341--isotype, W--photo of isotype). State undetermined: Herb. A. Gray s.n. [Brasil] (T). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

LEIOTHRIX VIVIPARA var. ANGUSTA Ruhl.

Synonymy: Eriocaulon proliferum Hochst. ex Steud., *Syn. Pl. Glum.* 2: [Cyp.] 277 & 334. 1855 [not E. proliferum Bong., 1831].

Paepalanthus viviparoides Ruhl. ex Moldenke, Résumé Suppl. 1: 22, in syn. 1959.

Bibliography: Steud., Syn. Pl. Glum. 2: [Cyp.] 277 & 334. 1855; Ruhl. in Engl., Pflanzenreich 13 (4-30): 238 & 288. 1903; Moldenke, Known Geogr. Distrib. Erioc. 9 & 44. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 79 & 207. 1949; Moldenke, Résumé 92 & 485. 1959; Moldenke, Résumé Suppl. 1: 22. 1959.

Ruhland (1903) describes this taxon as follows: "Differt a forma typica foliis setaceo-linearibus, fere teretibus, 0,5--1,5 cm longis, densissime fasciculato-caespitosis; capitulis supremis plerumque viviparis, semper plus minus cinereo-flavescentibus, latissime obconicis (nec non viviparis, fere globosis, splendide-flavescentibus), bracteis involucrentibus acutis (nec acuminatis)!" He bases the variety on P. Clausen 1163, Glaziou 15515, and Mendonca 323, all of which he cites to Minas Gerais, Brazil. The printed label accompanying the Glaziou collection, however, in at least some herbaria is inscribed "Rio de Janeiro" as the state in which the collection was made. P. Clausen 163 in the Berlin herbarium appears to be the type collection of both Eriocaulon proliferum Hochst. and Paepalanthus viviparoides Ruhl. and is also probably the collection cited as "1163" by Ruhland. He comments (1903) that "Specimina a Clausen collecta a cl. Koernicke ad formam typicam ducta sunt". The Eriocaulon proliferum Bong., referred to in the synonymy above, is the name-bringing synonym of Leiothrix prolifera (Bong.) Ruhl.

Recent collectors describe L. vivipara var. angusta as caespitose, to 10 cm. tall, with white flower-heads, and found it growing on wet campos in areas of gallery forests and adjacent rocky campos, at 1200 meters altitude, flowering and fruiting in February. The Mello Barreto 2513 [Herb. Jard. Bot. Belo Horiz. 8281], distributed as this variety, is actually L. flagellaris (Guill.) Ruhl.

Citations: BRAZIL: Minas Gerais: P. Clausen s.n. [Aug.-April 1840] (Br), s.n. [Serra do Caraça; U. S. Nat. Herb. photo 5898] (N-photo, P), 163 (B-cotype, B-cotype, Br-cotype, Z-cotype); Glaziou 15515 (B-cotype, Br-cotype, N-cotype, N-photo of cotype, Z-photo of cotype); F. C. Hoehne 4955 (Mu), s.n. [Herb. Inst. Biol. S. Paulo 4955] (N); Irwin, Maxwell, & Wasshausen 21005 (N, Z); R. Mendonca 323 (B-cotype).

LEIOTHRIX VIVIPARA var. LONGIPILOSA Moldenke

Bibliography: Moldenke, Phytologia 13: 218. 1966; Moldenke, Résumé Suppl. 13: 3. 1966; Moldenke, Biol. Abstr. 47: 6792. 1966; Hocking, Excerpt. Bot. A.11: 450. 1967.

Citations: BRAZIL: Minas Gerais: Tryon & Tryon 6784 (Z-type).

MESANTHEMUM Körn.

Synonymy: Messantheum Körn. apud Pritz., Icon. Ind. 2: 185. 1866. Eulepis Bong. apud Post & Kuntze, Lexicon 219. 1904.

Messanthemum Pritz. apud Airy Shaw in Willis, Dict. Flow. Pl., ed. 7, 718. 1966. *Eulepis* (Bong.) Post & Kuntze apud Airy Shaw in Willis, Dict. Flow. Pl., ed. 7, 430, in syn. 1966.

Bibliography: Lam., Encycl. Méth. Bot. 3: 276. 1789; Lam., Tabl. Encycl. Méth. 1: 213. 1791; Pers., Syn. Fl. 1: 111. 1805; Roem. & Schult. in L., Syst. Veg., ed. 15 nov., 2: 866. 1817; Steud., Nom. Bot. Phan., ed. 1, 313. 1821; Spreng. in L., Syst. Veg., ed. 16, 3: 776. 1826; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 632 & 635. 1831; Bong., Ess. Monog. Erioc. 3, 4, 11, 12, 16, & 35. 1831; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 569, 578, 579, & 614. 1841; Hook. f., Niger Fl. 547-548. 1849; D. Dietr., Syn. Pl. 5: 265 & 268. 1852; Walp., Ann. 3: 663 (1852) and 3: 1014. 1853; Steud., Syn. Pl. Glum. 2: [Cyp.] 272-273, 278, 282, & 334. 1855; Körn., Linnaea 27: 562, 572-576, & 798. 1856; C. Müll. in Walp., Ann. 5: 921-922 & 958. 1860; Körn. in Mart., Fl. Bras. 3 (1): 283, 284, 287, 294, 298, 301-302, 471-472, & 504-506, pl. 60, fig. 1. 1863; Pritz., Icon. Ind. 2: 185. 1866; Körn., Abh. Naturw. Ver. Bremen 7: 34. 1880; Benth. & Hook. f., Gen. Pl. 3 (2): 1021-1022 & 1246. 1883; J. G. Baker, Journ. Linn. Soc. Lond. Bot. 20: 278-279. 1883; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 23-25 & 27, fig. 12 T. 1888; Morong, Bull. Torr. Bot. Club 18: 352. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878 & 879 (1893) and 2: 214. 1894; Baill., Hist. Pl. 12: 398 & 399. 1894; N. E. Br. in Thiselt.-Dyer, Fl. Cap. 7: 52, 58, & 781. 1897; Ruhl. in Engl., Bot. Jahrb. 27: 79. 1899; Thiselt.-Dyer, Fl. Trop. Afr. 8: 260-261. 1901; Ruhl. in Engl., Pflanzenreich 13 (4-30): 12, 14-16, 19, 22, 25, 29, 30, 117-120, 285, 287, & 288, fig. 16. 1903; Post & Kuntze, Lexicon 219. 1904; Stapf in H. Johnston, Liberia 2, app. 4: 662. 1906; Pax in Engl., Bot. Jahrb. 39: 609. 1907; H. Lecomte, Bull. Soc. Bot. France 55: 573, 594, 595, 597-602, & 643, fig. 1 & 2. 1908; Prain, Ind. Kew. Suppl. 4, pr. 1, 153. 1913; T. Fr. in R. E. Fr., Wiss. Ergebn. Schwed.-Kong.-Exped. 1911-12 Bot. 1 (2): 218-219, pl. 16. 1916; A. W. Hill, Ind. Kew. Suppl. 6: 127. 1926; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 44-48 & 50, fig. 18. 1930; Stapf, Ind. Lond. 4: 280. 1930; Hutchinson & Dalz., Fl. W. Trop. Afr. 2: 327-328, fig. 292. 1936; Dinklage in Fedde, Repert. Sp. Nov. 41: 243. 1937; Nakai & Honda, Nov. Fl. Jap. 6: 4 & 87. 1940; Abbiatti, Rev. Mus. La Plata Bot., new ser., 6: [311], 314, & 315. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878 & 879 (1946) and 2: 214. 1946; Moldenke, Known Geogr. Distrib. Erioc. 7, 20-22, 35, 38, 39, 44, 61, & 62. 1946; Jacques-Félix, Bull. Soc. Bot. France 94: 143-151. 1947; Terrac, Trav. Lab. Mat. Méd. 33 (3): 107. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 109, 111-115, 119, 120, 123, & 207. 1949; Moldenke, Phytologia 3: 113-114 & 143 (1949) and 3: 500-501. 1951; Meikle & Baldwin, Am. Journ. Bot. 39: 44, 45, 47, & 50, fig. 9-18. 1952; E. J. Salisb., Ind. Kew. Suppl. 11: 157. 1953; Duvigneaud, Lejeunia 16: 103. 1953; Zinderenbakker, S. Afr. Pollen 1: 36. 1953; E. Müll., Phytopath. Zeit. 23: 109. 1955; Moldenke in Humbert, Fl. Madag. 36: 30-33, fig. 4. 1955;

H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 139, 178—185, & 203, fig. 1—3. 1955; Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Index 1955: 30. 1956; Angely, Cat. Estat. 10: [2]. 1956; Bourdu, Bull. Soc. Bot. France 104: 156. 1957; Angely, Fl. Paran. 10: 8, 9, & 11. 1957; Anon., U. S. Dept. Agr. Bot. Subj. Ind. 5: 4227. 1958; Prain, Ind. Kew. Suppl. 4, pr. 2, 153. 1958; Moldenke, Résumé 133, 135—138, 140, 142, 147—149, 151, 156, 288, 290, 291, 320, 400, & 485. 1959; G. Taylor, Ind. Kew. Suppl. 12: 90. 1959; Moldenke, Résumé Suppl. 1: 8—10, 18, 19, & 25 (1959) and 2: 6. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878 & 879 (1960) and 2: 214. 1960; Moldenke, Résumé Suppl. 4: 6. 1962; Moldenke, Phytologia 8: 390—391. 1962; Moldenke, Résumé Suppl. 4: 6 (1962) and 7: 8. 1963; [Wiltshire], Rev. Appl. Myc. Ind. Fungi 2: 355, 359, & Cum. Ind. 202. 1963; Hocking, Excerpt. Bot. A.6: 455. 1963; Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Index 1962: 29. 1963; Moldenke, Biol. Abstr. 42: 1517. 1963; Hegnauer, Chemotax. Pfl. 2: 152 & 153. 1963; H. P. Riley, Fam. Flow. Pl. S. Afr. 199. 1963; Melchior in Engl., Syllab. Pfl., ed. 12, 2: 555. 1964; F. A. Barkley, List Ord. Fam. Anthoph. 113 & 185. 1965; Thanikaimoni, Pollen & Spores 7: 182 & 188. 1965; Moldenke, Résumé Suppl. 12: 11. 1965; Airy Shaw in Willis, Dict. Flow. Pl., ed. 7, 430, 716, & 718. 1966; Jaeger, Lamotte, & Roy, Bull. Inst. Fond. Afr. Noire 28: 1160—1161, fig. 7. 1966; Moldenke, Résumé Suppl. 15: 21 (1967), 16: 22 & 24 (1968), and 17: 4 & 11. 1968; M. E. S. Morrison, Journ. Ecol. [Brit.] 56: 373. 1968; Moldenke, Phytologia 17: 450 (1968), 18: 256, 258, 303, 394, 395, & 508 (1969), and 19: 35. 1969; Moldenke, Résumé Suppl. 18: 6 & 13. 1969; Moldenke, Phytologia 19: 458, 468, & 469 (1970) and 20: 8. 1970; G. Taylor, Ind. Kew. Suppl. 14: 86. 1970.

Herbs, with very short stems; leaves non-pellucid, not fenestrate; floral heads villous; staminate florets: sepals 3, connate at the base; petals completely connate into an infundibular tube which is solid at the base, deeply hollowed-out above, and shortly 3-lobed or truncate, glanduliferous beneath the apex within; stamens 6; anthers yellowish; pistillate florets: sepals 3, separate, caducous; petals 3, separate at the base, connate above into a tube, glanduliferous on the inner surface; ovary 3-celled; style very long; stamens 3, simple, usually short; the hairs on the floral heads smooth, slender, acute at the apex.

A small genus of about 13 species limited to tropical Africa and Madagascar. The type species is M. radicans (Benth.) Körn. Hess (1955) says of this genus "Die Gattung Mesanthemum schlieszt sich am nächsten an die Gattung Eriocaulon an. Auszer diesen beiden Gattungen haben keine andern Gattungen 6 Staubblätter. Wie bei Eriocaulon sind auch bei Mesanthemum Drüsen an den Petalen vorhanden (Ausnahme: Mesanthemum reductum H. Hess). Mesanthemum hat in den ♂ Blüten stets vollständig verwachsene, einen Tubus bildende Petalen. In den ♀ Blüten sind die Petalen über der Frucht frei, weiter oben röhrig verwachsen. Verwachsungserscheinungen beschränken sich in der Gattung Eriocaulon auf die Sepalen.

"Die Gattung Mesanthemum ist bisher nur aus Afrika und Madagas-

kar bekannt geworden. Sie ist dort innerhalb der beiden Wendekreise weit verbreitet. Gegenwärtig sind aus dieser Gattung etwa ein Dutzend Arten beschrieben, die wahrscheinlich nicht alle systematischen Wert haben. Verschiedene wurden an Hand einer Einzelpflanze beschrieben und können nach den Diagnosen nicht von verwandten Arten getrennt werden... Ein Bestimmungsschlüssel findet sich für alle bekannten Arten (ausgenommen M. africanum Moldenke und M. reductum H. Hess) bei Jacques-Félix (1947)."

Excluded from the genus are the following binomials and the taxa to which they apply:

Mesanthemum chilloui Moldenke = Eriocaulon plumale ssp. kindiae (H. Lecomte) Meikle

Mesanthemum latifolium J. Sm. = Eriocaulon latifolium J. Sm.

Mesanthemum necopinatum Moldenke = Eriocaulon plumale ssp. jaegeri (Moldenke) Meikle

Mesanthemum necopinatum Moldenke = Eriocaulon plumale ssp. jaegeri (Moldenke) Meikle

Airy Shaw (1966) lists "Eulepis (Bong.) P. & K." as a generic synonym of Mesanthemum, but Eulepis Bong. is now regarded as a valid section of the genus Syngonanthus Ruhl. Also, Post & Kuntze (1904), to whom Airy Shaw accredits the name as a genus, credit it solely to Bongard and plainly propose it to replace the name Mesanthemum Körn., with Eriocaulon prescottianum Bong. as the type species.

It is also worth noting here that the Walpers (1860) reference, given in the generic bibliography above, is often cited as "1858", but actually only pages 1--160 of this work were issued in 1858 -- pages 161--640 were issued in 1859 and pages 641--966 in 1860. Lecomte's work in Bull. Soc. Bot. France (1908) is often cited as "1909", but the pages with which we are concerned here were issued in 1908. Körnicke's work (1856) is cited by the Index Kewensis and in other works as "1854", but was not actually issued until April of 1856. Angely (1957), through a typographic error, cites it as "1956".

The generic name is derived from the Greek μέσος (=middle) and ἄρθος (=flower) in allusion to the fact that the genus stands intermediate between Eriocaulon and Paepalanthus. Angely (1956) says that it contains ten species. Riley (1963) notes that the genus was recorded from South Africa by mistake in the Flora Capensis, and that this error was later corrected to Angola by N. E. Brown in the Flora of Tropical Africa.

MESANTHEMUM AFRICANUM Moldenke

Bibliography: Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 119, 120, & 207. 1949; Moldenke, Phytologia 3: 113--114 & 143 (1949) and 3: 500. 1951; E. J. Salisb., Ind. Kew. Suppl. 11: 157. 1953; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 180. 1955; Moldenke, Résumé 149, 151, & 485. 1959.

MESANTHEMUM ALBIDUM H. Lecomte

Bibliography: H. Lecomte, Bull. Soc. Bot. France 55: 601—602, fig. 2. 1908; Prain, Ind. Kew. Suppl. 4, pr. 1, 153. 1913; Stapf, Ind. Lond. 4: 280. 1930; Moldenke, Known Geogr. Distrib. Erioc. 20 & 44. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 111, 119, 120, & 207. 1949; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 185. 1955; Prain, Ind. Kew. Suppl. 4, pr. 2, 153. 1958; Moldenke, Résumé 136 & 485. 1959; Moldenke, Résumé Suppl. 4: 6. 1962.

Illustrations: H. Lecomte, Bull. Soc. Bot. France 55: 602, fig. 2. 1908.

The Boismare 445 collection, cited below, was originally a mixture with M. auratum H. Lecomte, but the latter portion has now been re-designated as no. 445a.

Citations: SÉNÉGAL: J. G. Adam 18362' (Z). REPUBLIC OF GUINEA: Boismare 445 [Herb. Chillou 3965] (An, Z).

MESANTHEMUM AURATUM H. Lecomte

Bibliography: H. Lecomte, Bull. Soc. Bot. France 55: 599—602, fig. 1. 1908; Prain, Ind. Kew. Suppl. 4, pr. 1, 153. 1913; Stapf, Ind. Lond. 4: 280. 1930; Moldenke, Known Geogr. Distrib. Erioc. 20 & 44. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 111 & 207. 1949; Prain, Ind. Kew. Suppl. 4, pr. 2, 153. 1958; Moldenke, Résumé 136 & 485. 1959.

Illustrations: H. Lecomte, Bull. Soc. Bot. France 55: 600, fig. 1. 1908.

The Boismare 445a collection, cited below, was originally part of Boismare 445, a mixture with M. albidum H. Lecomte.

Citations: REPUBLIC OF GUINEA: Boismare 445a (Z).

MESANTHEMUM BENNAE Jacques-Félix

Bibliography: Jacques-Félix, Bull. Soc. Bot. France 94: 145. 1947; E. J. Salisb., Ind. Kew. Suppl. 11: 157. 1953; Moldenke, Résumé Suppl. 18: 6. 1969.

This species is known thus far only from the Republic of Guinea.

MESANTHEMUM ERICI-ROSENI T. Fries

Synonymy: Mesanthemum erici-rozeni T. Fries apud H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 183 & 203. 1955.

Bibliography: T. Fr. in R. E. Fr., Wiss. Ergebn. Schwed. Rhod.-Kong.-Exped. 1911-12 Bot. 1 (2): 218—219, pl. 16. 1916; A. W. Hill, Ind. Kew. Suppl. 6: 127. 1926; Stapf, Ind. Lond. 4: 280. 1930; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 183 & 203. 1955; Moldenke, Résumé 148, 320, & 485. 1959; Moldenke, Résumé Suppl. 17: 4. 1968.

Illustrations: T. Fr. in R. E. Fr., Wiss. Ergebn. Schwed. Rhod.-Kong.-Exped. 1911-12 Bot. 1 (2): pl. 16. 1916.

Robinson describes this plant as a stoutly-based perennial, the inflorescence-heads white. Collectors have found it growing in marshes and permanently wet "dambo", flowering in October.